

## **ABSTRACT**

The present invention relates to a semiconductor laser, having a construction capable of tuning a wavelength, in which a sampled grating distributed feedback SG-DFB structure portion and a sampled grating distributed Bragg reflector SG-DBR structure portion are integrated. In the present invention, the refraction index are varied in accordance with a current applied to the phase control area in the SG-DFB structure portion and the SG-DBR structure portion, whereby it is possible to continuously or discontinuously tune the wavelength. Therefore, in such a wavelength tunable semiconductor laser, its construction is relatively simple, and it is relatively useful to the manufacturing and mass-producing the semiconductor laser. In addition, such a wavelength tunable semiconductor laser has an excellent output optical efficiency while making it possible to tune the wavelength of the wide band.